

REMARKS

Status of Claims

1. Claim 1 is presented in clean form incorporating the amendments made in Applicant's RCE-accompanying amendment of September 10, 2007 in reply to the May 9, 2007 action, made final, by the Office in the previous examination of this application. Claims 2-7 are essentially as amended, and 8-14 as added, by Applicant's preliminary amendment of June 30, 2004, with claim 2 having been editorially revised slightly in Applicant's reply to the first action on the merits. No claims have been added, canceled, or amended in this paper. Claims 1-14 thus remain pending.

Claim Rejections – 35 U.S.C. § 103

2. Claims 1-14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kuibira et al.* (U.S. Pat. No. 6,508,884) in view of *Ferguson* (U.S. Pat. App. Pub. No. 2003/0209534) and *Aonuma et al.* (Japanese Unexamined Pat. App. Pub. No. 2002-252269).

Applicability of *Kuibira et al.* as a § 103 Reference

3. In making this rejection, with regard to the applicability of *Kuibira et al.* '884—that is, the U.S. patent itself as a reference—the Examiner has again maintained,
[B]ased upon the earlier effective U.S. filing date of the reference [*Kuibira et al.*], it constitutes prior art only under 35 U.S.C. 102(e). . . . This rejection might . . . be overcome by showing that the reference is disqualified under 35 U.S.C. § 103(c) as prior art in a rejection under 35 U.S.C. § 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).
4. Applicant's undersigned representative now realizes that his remarks in the September 10, 2007 reply concerning the applicability of *Kuibira et al.* improperly presumed that the Office's having cited *Kuibira et al.* the issued patent (No. 6,508,884) is tantamount to the Office's also citing *Kuibira et al.* the published patent application (Pub. No. 2002/0007911). At the same time, Applicants' undersigned representative also failed to consider that the filing date of the present application is, for legal purposes in considering the applicability of a reference, not the July 2, 2004 § 371(c) date on which the present application was entered into the U.S. National Stage, but is, rather, its **March 20, 2003** International filing date.
5. Hence, the Office's statement that *Kuibira et al.* '884 "constitutes prior art only under 35 U.S.C. § 102(e)" is now properly understood to be—and understood to be proper—because although the January 21, 2003 issue date of *Kuibira et al.* '884 does not predate the March 20, 2003 filing date of the instant application by more than a year (such as would make *Kuibira et al.* '884 applicable as a § 102(a)

or § 102(b) reference), the dates are so close as to lead to the presumption that *Kuibira et al.* '884 was filed in the U.S. before the invention in the instant application was completed.

6. Reconsideration of the presently addressed rejection—which is the lone rejection outstanding in the prosecution of this application—under 35 U.S.C. § 103(a) over *Kuibira et al.* '884 as a primary reference is requested in view of the telephone interview conducted on May 16, 2006 with Primary Examiner Jeffrie Lund, by Applicant's undersigned representative. Accordingly, on Applicant's behalf the following summary is submitted, further to the interview summary to be provided by Examiner Lund.

Interview Summary Pursuant to 37 C.F.R. § 1.133(b)

- 1) No claims *per se* or amendments were discussed, only the applicability of *Kuibira et al.* as a reference in making and maintaining the § 103 rejection of the pending claims.
 - 2) The specific prior art discussed was: *Kuibira et al.* '884.
 - 3) No claim amendments were discussed.
 - 4) Applicant's undersigned representative pointed out the remarks he made in the September 10, 2007 reply concerning the applicability of *Kuibira et al.*
Examiner Lund pointed out that what Applicant's representative was referring to as "*Kuibira et al.*" is actually **two distinct references**, U.S. Pat. No. 6,508,884, and the U.S. Pat. App. Pub. No. 2002/0007911, and that only the former has been applied in making the current rejection.
Examiner Lund kindly suggested that a statement of common ownership by Applicant's representative (an agent of record) could be made to disqualify *Kuibira et al.* '884 as prior art.
 - 5) Examiner Lund noted that although *Kuibira et al.* '884 may thus be disqualified, nevertheless, *Kuibira et al.* as Pat. App. Pub. No. 2002/0007911 would be available via § 102(a), § 102 (b), and even again via § 102 (e), to the Office in making a fresh § 103(a) rejection of the pending claims.
 - 6) Both parties concluded by agreeing that a statement of common ownership is a proper way to respond to the § 103(a) rejection over *Kuibira et al.* '884 as a primary reference.
7. Applicants respectfully traverse the rejection of claims 1-14 over U.S. Pat. No. 6,508,884 to *Kuibira et al.* As noted earlier, the Office explicitly states that *Kuibira et al.* '884 constitutes prior art only under 35 U.S.C. § 102(e). 35 U.S.C. § 103(c) states:

Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignments to the same person.

In accordance with MPEP § 706.02(I)(1) and § 706.02(I)(2), Applicant's undersigned representative states for the record that the instant application and U.S. Pat. No. 6,508,884 to *Kuibira et al.* were, at the time the invention that is the subject of the instant application was made, commonly owned by Sumitomo Electric Industries, Ltd. Thus, under 35 U.S.C. § 103(c), *Kuibira et al.* '884 should be disqualified as a 35 U.S.C. § 103(a) reference. Applicant therefore requests that the present rejection of claims 1-14 as based on *Kuibira et al.* '884 as the primary reference be withdrawn.

Applicability of *Ferguson* as a § 103 Reference

8. *Ferguson*, which was published on November 13, 2003, is apparently presumed to qualify as a reference under § 102(e) not on the basis of its May 9, 2003 filing date as a non-provisional application, which postdates the above-noted March 20, 2003 International filing date of the present application, but on the basis of its May 9, 2002 filing date as a provisional application—the Office's presumption being (according to MPEP 2136.03) that the *Ferguson* provisional application properly supports the subject matter relied upon to make the rejection in compliance with 35 U.S.C. § 112, first paragraph.

§ 103 Rejection Addressed Substantively

9. Applicant respectfully submits that even if *Kuibira et al.* becomes applicable as a § 103(a) reference in its earlier incarnation as U.S. Pat. App. Pub. No. 2002/0007911, either alone or in the cited combination the reference does not teach or suggest the present invention. In particular, Applicant's counterarguments with regard to *Kuibira et al.* and *Aonuma et al.* are as below.
10. The *Kuibira et al.* reference, in which the angle formed by the bottom and lateral sides is 90°, is cited to begin with; yet *Kuibira et al.* merely sets forth a conductive layer schematically, in an idealized rectangular form; in fact, when manufacture of the layer by printing is carried out, viscosity is imparted to the paste, and, owing to gravity and to conditions during printing, creeping occurs, such that the layer turns out to be trapezoidal in cross sectional form, as described in the present application.
11. With the present application, from investigations focusing attention on this particularized angle, it became apparent that though a maximal 90° angle cannot be achieved in reality, if the minimal angle of the trapezoidal form is less than 5°,

serious cracking occurs, which led to finding the lower limit of the trapezoidal form's minimal angle.

12. That is, it was found that if the best-suited trapezoidal minimal angle in cross-sectional form is 5° or more, shorting between adjacent circuit lines, in the areas where acute angles have formed due to the creeping portions, does not arise, which enables high-reliability ceramic susceptors to be obtained.
13. In the present application, the conductive layer is manufactured by varying the paste dilution to alter the paste viscosity (page 6, line 7 & ff. of the specification as filed) so that the minimal angle will be 5° or more, whereas *Kuibira et al.* is silent as to especially adjusting the paste in the manner of the present application, and in fact is unclear as to whether the minimal angle in cross-section proving to be of trapezoidal form is 5° or more, wherein *Kuibira et al.* includes the possibility of the minimal angle being less than 5°, such that from the reference one could not arrive at being able to solve—as achieved in the present application—substrate damage due to shorting.
14. In the Aonuma et al. reference, a manufacturing method in which metal wire is joined into a groove processed by machining or sandblasting is disclosed, which totally differs from the printing technique in the present application. With their manufacturing method, ceramic substrates have to undergo the preparatory groove processing operation, meaning a higher-cost manufacturing method by comparison with a printing technique in the manner of the present application, such that the present invention is superior.
15. *Aonuma et al.* notes that there are no special restrictions on the heating element 12 in sectional form being elliptical, capsular, oblong, etc., and in the reference, processing of the metal wire is set forth, in paragraph [0020]. This means that their conductive layer is composed of metal alone; yet inasmuch as a conductive layer in the present application is a sinter of a paste, the elemental composition of the conductive layer is different.
16. Meanwhile, *Aonuma et al.* does present a configuration in which metal wire and a conductive paste are combined, but in that case as well, the elemental composition of the manufactured result differs completely from the present application, in which the conductive layer is made solely of a sintered paste.
17. Moreover, with the manufacturing method set forth in *Aonuma et al.*, the structure joins metal wire into the inside of grooves, wherein the heater-wire spacing must take up considerable breadth given the groove-processing constraints; therefore, shorting of the heater wires is unlikely to arise.
18. In the present application, the downside of the paste printing technique allowing the heater-wire spacing to be made denser is that shorting therein is more liable to occur; thus with the goal of preventing this, the present invention is a result of

investigating in detail in what manner the cross-sectional form should be controlled, while in *Aonuma et al.* there is neither any mention of nor suggestion with respect to such issues.

19. Thus, it is respectfully submitted that for the reasons set forth above the present § 103(a) rejection—the lone rejection of pending claims 1-14—lacks a proper *prima facie* basis, and that moreover, the cited combination of references fails to arrive at

a resistive heating element composed of wiring lines formed from a conductive paste print-coated in a predetermined configuration on either a surface of or inside said ceramic substrate, the conductive paste of viscosity selected so that as print-coated, the wiring lines take on a substantially trapezoidal form in cross-section, defining bottom and inclined lateral sides, and so that in section through said wiring lines the smallest angle formed by the bottom and the lateral sides is 5° or greater.

Conclusion

Accordingly, Applicant courteously urges that this application is in condition for allowance. Reconsideration and withdrawal of the rejections is requested. Favorable action by the Examiner at an early date is solicited.

Respectfully submitted,

May 19, 2008

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